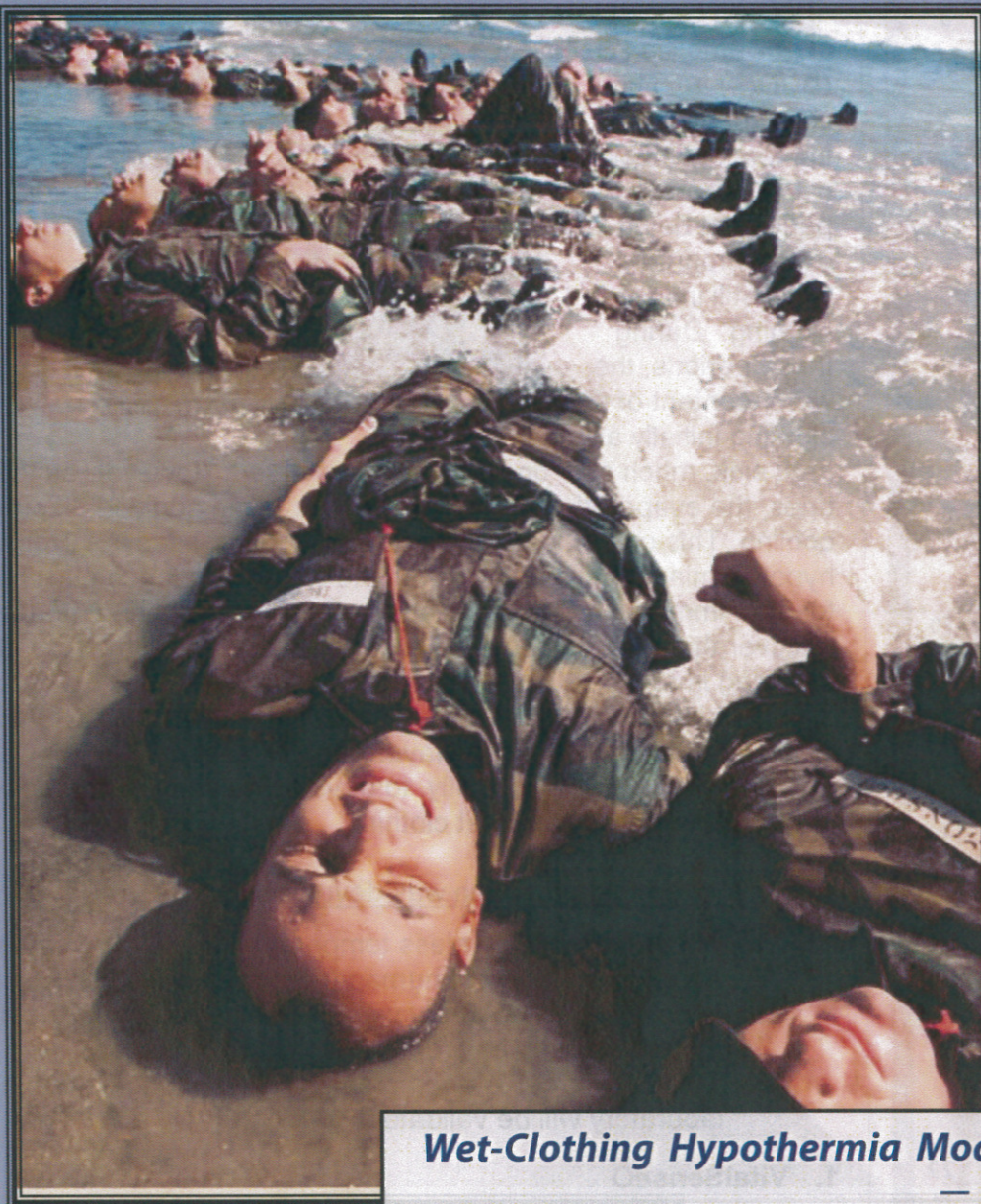




# Naval Health Research Center Quarterly Update

Second Quarter

Summer 2010



***Wet-Clothing Hypothermia Model Studied***

— PAGE 2

***Readiness Through Research and Development***

**50 Years of Excellence**

**1959 ~ 2009**



## Inside this issue:

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# Wet-Clothing Hypothermia Model Studied

**B**asic Underwater Demolition/Seal (BUD/S) training often involves immersion in cold water, followed by periods of being in a dry environment while still in wet clothing. During these periods, the water content of the clothing initially acts as a



BUD/S Training

heat sink, much as if one were still immersed. However, as the clothing dries, the evaporation of the water provides an additional source of cooling. This continued cooling potentially increases the probability of hypothermia, despite being out of the water. Guidance currently exists for safe immersion exposure, but there are currently no models or data to cover the effects of being in a dry environment with wet clothing following immersion.

The Naval Special Warfare Basic Training Center (NSWBTC) requested the assistance of Naval Health Research Center with this potential problem. Specifically, to develop guidance for exposure limits to cool air while wearing wet clothing.

### A three-fold approach was developed:

1. The VitalSense wireless temperature monitoring system,
2. An existing model of human thermoregulation (Wissler, 2003) to cover the situation of wearing wet clothing while standing in a variety of dry environments was adapted, and
3. The thermoregulatory model using human trials within the laboratory will be validated.

### 1. VitalSense<sup>®</sup>

The performance of the VitalSense<sup>®</sup> wireless temperature monitoring system (Mini Mitter Co, Inc., Bend, OR) to monitor core temperatures in conjunction with cold water immersions was demonstrated. The VitalSense is based on measurement of temperature of an ingestible, temperature-sensitive "pill" that

*Continued on Page 12— Wet-Clothing Study*



## NHRC CHANGE OF COMMAND



CAPT Kerry Thompson

Naval Health Research Center held a change of command on 30 March 2010 when CAPT Gregory C. Utz, MC, USN, relieved CAPT Kerry R. Thompson, MSC, USN, as Commanding Officer.

More than 100 staff, family, friends and guests attended the traditional ceremony held at NHRC. The guest speaker was Rear Admiral Karen Flaherty, NC, USN, Deputy Chief, Wounded, Ill and Injured, Bureau of Medicine and Surgery, Headquarters for Navy Medicine.

"I had a chance to spend some time yesterday learning about the work you all do here, and I can tell you that I was thoroughly impressed with what I saw!" said Rear Admiral Karen Flaherty. She described some

of the command's recent highlights, including NHRC's discovery of the H1N1 influenza virus, the Expeditionary Medical Encounter Database and related modeling and simulation capabilities, and NHRC's focused epidemiology work and resulting targeted behavioral change interventions.

During his remarks, CAPT Utz said, "I am honored at being selected to lead this very impressive group of scientists!"

CAPT Thompson highlighted his time at NHRC. "I can't tell you how well known and highly regarded you all are" he said to the staff. "Everywhere I go, people speak of the quality and relevance of what you do for the fleet." CAPT Thompson thanked each department and the Board of Directors.

During his 3 year tenure, he pushed for greater involvement and integration with research activities at Naval Medical Center, San Diego and established the "NHRC Resident Research Program," where residents could become involved with NHRC protocols as part of their training. He expanded the Scientific Support Office beyond congressional special interest programs to include the execution of contracting requirements of NHRC's technical codes, Navy Medical R&D enterprise laboratories, and specific BUMED special interests.

For his accomplishments, CAPT Thompson was awarded the Legion of Merit by CAPT Haberberger.

CAPT Thompson will report to USS Ronald Reagan.

*Continued on Page 22- CHANGE OF COMMAND*





**CDR Patrick Blair discusses results with LT Coyle, MC USA.**

## Infectious Diseases Surveillance

Naval Health Research Center (NHRC), in collaboration with the US Army's Armed Forces Research Institute of Medical Sciences in Bangkok (AFRIMS), provided infectious diseases surveillance during the joint military exercise Cobra Gold between January 28-Feb 13, 2010.

Cobra Gold 2010 involved troops from the US and five Asian nations participating in military and humanitarian exercises. NHRC's investigators supported disease surveillance among participants,

collecting respiratory specimens from febrile individuals at five sites in the Samaesan area. Laboratory analysis was conducted in spaces provided by the Thai military at Queen Sirikit Hospital on the Utapao Air Force Base.

During the exercise, specimens positive for influenza B and the novel influenza A/H1N1 were diagnosed. The identification of the pandemic strain of influenza in a previously vaccinated soldier caused planners to initiate steps to increase awareness and decrease disease transmission. These included installation of additional hand washing and hand sanitizer stations, and an increased emphasis on cough etiquette. Isolated viruses are being shipped to NHRC's laboratory in San Diego for further characterization.



## NHRC Military Research Psychologists

Both former and current NHRC Medical Service Corps Research Psychologists attended the Navy Medicine Research Symposium in Lansdowne, Virginia April 2010.



**LCDR Katie Shobe, LT Jake Norris, CDR Steve Linnville, CAPT (ret) Steve Ahlers, Captain Dave Neri, CDR (ret) Karl Van Orden, LCDR Walter Carr**



# NHRC COMMAND HIGHLIGHTS



## **NHRC Awarded Tasks for Humanitarian Assistance, Disaster Relief —MAY 2010**

The Air Force has awarded NHRC a task to develop Humanitarian Assistance, Disaster Relief and Medical Civilian Assistance Program Unit Type Codes. This 9 month effort will establish our baseline capability to answer customer needs in this area.

## **MM&S Department Awarded Patent - May 2010**

NHRC Medical Modeling, Simulation and Mission Support researchers Dr. Paula Konoske, Michael Galarneau, Gerald Pang, and Tim Daly were awarded a patent, #7,707,042 for the Estimating Supplies Program (ESP) as a tri-service simulation tool designed to project medical supply requirements for user-defined operational scenarios.

## **MC Medium Tactical Vehicle Replacement (MTVR) Analysis completed - May 2010**

Judy Dye and the clinical staff completed analysis and coding on 49 medical cases for the Marine Corps Medium Tactical Vehicle Replacement (MTVR) 7 ton truck analysis in support of Marine Corps Systems Command. Wounded in action casualty analysis to support the Marine Corps Combat Development Center review of the MTVR vehicle incidents was also completed.

## **HIV/AIDS Conference Held in Tanzania - April 2010**

Rick Shaffer and 15 members of the Department of Defense HIV/AIDS Prevention Program (DHAPP) staff attended the International Military HIV/AIDS conference in Tanzania, Africa. Some 300 military leaders from around the world held the conference to highlight the role of leadership in implementing successful military HIV/AIDS programs. The meeting represents the readiness of military leaders from over 50 different nations to work together, learn from one another and together fight and conquer a common enemy, HIV/AIDS.

## **"Echoes" Video wins Award – April 2010**

Dr Jerry Larson accepted an award for the translational product, "Echoes" video, at the 2010 Navy Medicine Research Symposium in Lansdowne, VA. "Echoes" is an innovative video on the effects of combat trauma and the need to seek help for operational stress-related symptoms. The video presents a very real life situation experienced by a Marine after a deployment to Iraq, and how he and his family discuss and deal with the problem. "Echoes" has been widely disseminated by Navy and Marine Corps line leaders and provides a useful way to begin discussing the effects of trauma and the need to overcome long-standing stigma around mental health treatment. Congresswoman Susan Davis, D-CA, funded a package of combat stress related initiatives managed by NHRC in partnership with Science Applications International Corporation.

Collaborating Team: Dr. Jerry Larson; Dr. Heidi Kraft, SAIC; Strategic Operations/Stu Segall Studios.

*Continued on Page 6— Highlights*



*Continued from Page 5 — Highlights*

**H1N1 Research/Data Presented** – April 2010

CDR Patrick Blair and Dr Chris Myers presented recent research and surveillance data on influenza and respiratory diseases research, including discovery of the first two cases in the world of the pandemic H1N1 influenza at the 2010 Navy Medicine Research Symposium in Lansdowne, VA.

**BUD/s Hell Week Monitoring** - March 2010

Ms. Courtney May and Mr. Evan Johnson attended the first 36 hrs of BUD/s Class 281 Hell Week. They assisted with and provided interpretive feedback to medical and instruction staff in regards to core temperature monitoring using the Vital Sense Monitoring System.

**Collaborations and Research Projects Discussed** - March 2010

Ms Marion Lanneau from the Graduate Medical Education Office at Naval Medical Center San Diego met with CAPT Utz and Dr. Van Orden at NHRC. They provided her with a brief of the resources and research at NHRC, a tour of its facilities, and discussed potential areas of collaboration or assistance with residents, fellows, and academic staffs. Both the Clinical Investigation Program (CIP) and the laboratory-specific non-CIP program were discussed as opportunities to enhance research collaborative projects.

**Marine Transition Surveys Conducted**—February 2010

Data collection for a project examining psychological health concerns of Marines at time of military separation began at Cherry Point (NC), Henderson Hall (VA), and Iwakuni (Japan), and continued at Camp Pendleton (CA). The project with Dr. Jerry Larson as the PI administered surveys to Marines before and after separation from service. The goal is to identify factors that influence successful transition from military to civilian life, so that improved screening and resources are available for those transitioning out of the military. The Medical Officer of the Marine Corps has endorsed this effort.

**JTAPIC Helmet Sensor Project** - February 2010

The Expeditionary Medical Encounter Database-Combat Trauma registry (EMED-CTR) staff completed the first portion of the Joint Trauma and Prevention in Combat (JTAPIC) Helmet Sensor project. This phase of the project involved identifying which of 3,100 Marines and Soldiers assigned helmets with blast detecting helmet sensors sustained a head injury during their deployment. EMED staff found 70 service members with suspected blast-related head injuries. This list of individuals was sent to JTAPIC. Next, JTAPIC will examine each of the 70 helmet sensors in preparation for the next phase of the project, which will be correlating TBI severity with the helmet signal signatures. EMED will provide the clinical profiles for each of the 70 cases and conduct the analysis.

**LCDR Shobe Featured Scientist** - February 2010

LCDR Katie Shobe participated in the American Junior Academy of Science (AJAS) Breakfast with Scientists" in San Diego, CA. LCDR Shobe was the featured scientist at

*Continued on Page 19 — Highlights*



## Scientific Support Office Offers Contracting Guidelines



### SCIENTIFIC SUPPORT OFFICE (SSO) STAFF

L to R. Phillip Borja,  
Jamil Padcayan, Jose DeLeon,  
Dr. Edward Gorham, Ilka  
DeLeon, Brian Miller, Dianne  
Serna, Manolak "Luck" Chanthabandith, Manolom Khounborin,  
Amber Benjamin.  
Not pictured; Sandra Woo,  
Tyler Linn, Jason Bow

Naval Health Research Center's Scientific Support Office (SSO) provides contract support for medical Research & Development (R&D) activities. In anticipation of the immense contracting demand as the FY10 closes, the RDECOM Natick Contracting Division has been required to impose deadline dates to assure that they have the best opportunity and ability to meet our end-of-fiscal-year obligation requirements.

The ability of the SSO to meet these deadlines is strongly dependent on the ability of Principal Investigators and Program Managers to define their contracting requirements in a timely manner.

### **OMNIBUS 1 and 2;**

New contracting actions intended for competition on Omnibus 1 and 2 contract vehicles require Statements of Work (SOWs) containing sufficient detail so that they can be rewritten as requests for proposals (RFPs) for competition.

- These were required to the SSO by 1 June 2010.
- A suitable SOW should include a description of tasks and deliverables and schedule of milestones, period of performance, and travel (including breakdown of locations, duration and estimated travel costs).

### **Broad Area Announcements;**

If your research support includes requirements for university collaborations, NHRC SSO can assist with grants to universities and non-profit foundations through a Broad Area Announcement (BAA) process.

- A list of documents that need to be submitted for award through NHRC's BAA is located at <https://www3.natick.army.mil/nhrcbaa.html>.

*Continued on page 11— SSO Contracting Guidelines*



# NHRC in the News



## Navywide Academic Research Competition Held at NMCS

Thursday, 20 May 2010 MC1 Anastasia Puscian, Naval Medical Center San Diego Public Affairs

SAN DIEGO (NNS) -- Naval Medical Center San Diego hosted the 25th annual Navywide Academic Research Competition May 14. CAPT Greg Utz, Commanding Officer, Naval Health Research Center San Diego, was part of the judging panel who after much deliberation selected the winners at the end of the competition.

## Exercise May Ward Off Anger

June 8, 2010 WebMD Health News By [Charlene Laino](#)

"Preliminary Findings Suggest Exercise May Mitigate an Angry Mood" says Nathaniel Thom, PhD, a contractor to Naval Health Research Center in San Diego, who performed the study while at the University of Georgia. ...

## Study finds boredom puts troops at risk of anti-social behavior later

Los Angeles Times - [Tony Perry](#) -

Navy researchers in San Diego say that a war zone deployment marked by monotony can be an even greater precursor of misconduct than the psychological trauma of combat. But two researchers at Naval Health Research Center in San Diego have found another deployment experience that can be an even greater precursor of bad ...

## Navy Looks Into Effects of Heavy Combat Packs

Researchers are preparing to look into the effects of heavy Individual Load Bearing Equipment packs, according to a feature in the Navy Times. ...

## Researchers to analyze effects of heavy packs

NavyTimes.com - [Gidget Fuentes](#) -

SAN DIEGO — As the Marine Corps looks to replace the cumbersome ruck Marines and Sailors carry into combat, ...

## 1 year later; Pandemic is over, but H1N1 flu remains active

USA TODAY - USA Today - Apr 22, 2010

The two children were a 10-year-old military dependent and a 9-year-old California girl who visited a health clinic in Imperial County, says CDR Patrick Blair of Naval Health Research Center in San Diego. The Navy Research Center is part of a federal effort to

*Continued on page 9 — In the NEWS*



*Continued from page 8—In the NEWS*

track emerging diseases. But even with state-of-the-art technology, Blair and his team were unable to identify the viruses. They shipped both samples to the CDC by April 15, 2009. Within two days, the agency identified them as the novel H1N1 virus. "We had the first evidence of this budding pandemic," Blair says.

#### **Fleet to scrap body fat waivers July 1**

NavyTimes.com - Andrew Tilghman -

Paunchy Sailors who perform well on the physical readiness test can no longer expect a break on the Navy's body fat requirements.

#### **DoD gives \$7.9 million to Hampton Proton institute**

The Virginian-Pilot - Denise Watson Batts -

The Department of Defense Naval Health Research Center has awarded \$7.9 million to the Hampton University Proton Therapy Institute for equipment, research and staff.

#### **HU Proton Therapy Institutes gets almost \$8 million in federal, state funds**

Daily Press - Samieh Shalash -

HAMPTON — Hampton University has been awarded \$7.9 million for its Proton Therapy Institute by the Department of Defense's Naval Health Research Center and Gov. Bob McDonnell has restored \$510,000 in state money to the institute.

#### **Why do some suffer PTSD, others don't?**

San Diego Union Tribune - Gretel C. Kovach -

The biggest unknown is "what's trainable and what's hard-wired," said Chris Johnson, a clinical and research psychologist in the Warfighter Performance Department at the San Diego-based Naval Health Research Center.

#### **Action may prevent PTSD**

Durango Herald - The Durango Herald - Feb 1, 2010

Researchers at the US Naval Health Research Center led the study of about 700 troops injured in Iraq from 2004 through 2006

#### **First Conference on Military Families Held**

USC News - Brian Goodman -

Dr. Tyler Smith, Head of the Deployment Health Research Department at Naval Health Research Center, delivered the main presentation on the Millennium Cohort Study, the largest prospective health project in military history.

#### **To combat rape on campus, schools should stop keeping it quiet**

Washington Post - Mar 14, 2010

... studies notably ones by David Lisak at the University of Massachusetts at Boston and Stephanie McWhorter at Naval Health Research Center in San Diego

#### **Iraq/Afghanistan deployment tied to respiratory woes**

www.montrealgazette.com/health/ sexual-ealth/

Iraq+Afghanistan+deployment+tied+respiratory+woes – March 12, 2010

According to Dr Besa Smith from the Deployment Health Research Department at Naval

*Continued on page 16—In the NEWS*



## Dr. Paula Konoske Retires

One of NHRC's most distinguished employees has announced her retirement. Dr. Paula Konoske, Department Head of the Medical Modeling and Simulation (M&S) Department, has decided to retire on June 30 after 30 years of Federal government service. Dr. Konoske started working for the Navy Personnel Research & Development Center (NPRDC) as a San Diego State University (SDSU) Foundation student while obtaining her Master's degree. She came back after having finished all but her dissertation before graduating with her Ph.D. in Social Psychology. Since the fall of 1989, Dr. Konoske has also been teaching in the Department of Psychology at SDSU.



peacetime deployments. Department personnel work with medical planners, providers, and logisticians to develop projects that assist in field medical services planning, systems analysis, operational risk assessment, and to determine the best course of action for treating a particular patient stream using the available resources.

### Project Line Inspiration and Development

One major product line inspired and developed by Dr. Konoske is the Medical Modeling and Simulation Tools. These tools forecast the types and numbers of casualties expected to occur in different types of contingency environments, estimate the supplies required to treat a particular patient stream at both ground and shipboard levels of care and functional areas, model the delivery and consumption of a medical supply inventory over a series of time intervals, and model patient arrivals, treatment, and outcomes as they flow from the point of injury through a network of care facilities. The magnitude of operational impact these tools have made is evident by the fact that they are in use by Headquarters, US Marine Corps, Marine Corps Systems Command, Marine Corps Combat Development Command, Marine Corps Warfighting Laboratory, the Chief of Naval Operations (N81), the Commander, Naval Surface Force, US Pacific Fleet, Naval Medical Logistics Command, Navy

### Department Head Selection

Dr. Konoske was selected as the Department Head for NHRC's Medical Modeling, Simulation and Mission Support Department in 1994 from among a field of exceptionally qualified candidates. She exhibited superior vision, courage, personal dedication, and accountability in developing and subsequently growing the Department, significantly increasing the department budget beyond \$7M by 2010.

Led by Dr. Konoske, the M&S Department conducts analyses and develops models to provide medical decision support to operational commanders, medical logisticians, and field medical personnel as they seek to determine the resources required to support combat and

*Continued on page 11 —Konoske*



Continued from page 10 —Konoske

Warfare Development Command, and the Joint Readiness Clinical Advisory Board.

### Department Positioning and Patent

Dr. Konoske has positioned her department on the leading edge of optimizing the medical supply sets used by expeditionary forces, and contributing to the development of new medical treatment facility concepts for far-forward deployment. She and her team have developed casualty stream data and the Estimating Supplies Program, recently patented, to enable significant improvements in medical capability, while reducing the weight and cube of medical expeditionary medical supply blocks.

**Paula,**  
**We would like to wish you**  
**the very best**  
**on behalf of all of us at**  
**NHRC.**

***"Life begins at retirement." ~ Author Unknown***

Continued from page 7 — SSO Contracting Guidelines

- Please be sure that you and your collaborator identify the government sponsor or technical representative for each project.

### Sole Source Acquisitions:

Sole source acquisitions are also possible but depend on the complexity and dollar amount of the action. To improve our ability to develop complete packets as soon as possible, SSO requires the following;

- A detailed Statement of Work, as above;
- An Independent Government Cost Estimate (IGCE);
- Market research sufficient to understand the nature of the work being developed and the potential for commercial entities to support it;
- a Sole Source Justification that indicates the salient characteristics of the intended service or product being awarded to the specified vendor. Finalization of these documents will likely require greater review and editing, submission to NHRC SSO was due by 1 June 2010.

The NHRC SSO and RDECOM Natick Contracting Division is currently placing priority on the obligation of expiring funds.

Point of Contact; Dr. Edward Gorham.



*Continued from page 2— Wet-Clothing Study*



broadcasts intestinal temperatures to a remote monitor. If the pill is taken in advance of the immersion training, it will produce a temperature measurement that is almost identical to that recorded from the rectum. NSWBTC has purchased several monitors and sets of pills to use for direct monitoring of BUD/S trainees during cold water training evolutions. The instructors can now detect trainees who are close to hypothermia and provide them with an opportunity to warm up before resuming training.

## **2. The Human Thermoregulation Model with Manikin**

With funding under contract from the Bureau of Medicine and Surgery, an existing model of human thermoregulation (Wissler, 2003) to cover the situation of wearing wet clothing while standing in a variety of dry environments was adapted. This particular model currently offers prediction of thermoregulatory response to cold-water immersion.

To validate this model, measurements of the cooling power of wet clothing ensembles using a thermal manikin, in a range of temperatures, humidity and wind speeds was carried out. The cooling powers measured will be compared with predictions from our model, and corrections to the model can be made, if needed.

## **3. Thermoregulatory Model Using Human Trials**

The thermoregulatory model using human trials within NHRC's laboratory will be validated. Using swim flume for cold water immersion, and thermal chambers for controlled dry environmental exposure, changes in core and skin temperatures as the clothing dries can be followed, and then compared to the values predicted by the model.

When completed, this wet clothing model will provide NSWBTC with a tool for planning water-immersion training evolutions for which the probability of developing hypothermia in trainees is minimized.







## NHRC Recent Publications

[Selected static anatomic measures predict overuse injuries in female recruits.](#)

Rauh MJ, Macera CA, Trone DW, Reis JP, Shaffer RA.

Mil Med. 2010 May;175(5):329-35.

[Ultraviolet B Irradiance and Vitamin D Status are Inversely Associated With Incidence Rates of Pancreatic Cancer Worldwide.](#)

Mohr SB, Garland CF, Gorham ED, Grant WB, Garland FC.

Pancreas. 2010 Apr 30.

[A Multiplexed Luminex xMAP Assay for Detection and Identification of Five Adenovirus Serotypes Associated with Respiratory Disease Epidemics in Adults.](#)

Washington C, Metzgar D, Hazbón MH, Binn L, Lyons A, Coward C, Kuschner R.

J Clin Microbiol. 2010 Apr 21.

[Evaluation of multiplex type-specific real-time PCR assays using the LightCycler and joint biological agent identification and diagnostic system platforms for detection and quantitation of adult human respiratory adenoviruses.](#)

Metzgar D, Gibbins C, Hudson NR, Jones MS.

J Clin Microbiol. 2010 Apr;48(4):1397-403.

[The american football uniform: uncompensable heat stress and hyperthermic exhaustion.](#)

Armstrong LE, Johnson EC, Casa DJ, Ganio MS, McDermott BP, Yamamoto LM, Lopez RM, Emmanuel H.

J Athl Train. 2010 Mar-Apr;45(2):117-27.

[Perceptual responses while wearing an american football uniform in the heat.](#)

Johnson EC, Ganio MS, Lee EC, Lopez RM, McDermott BP, Casa DJ, Maresh CM, Armstrong LE.

J Athl Train. 2010 Mar-Apr;45(2):107-16.

[Midterm health and personnel outcomes of recent combat amputees.](#)

Melcer T, Walker GJ, Galarnreau M, Belnap B, Konoske P.

Mil Med. 2010 Mar;175(3):147-54.

[Single assay for simultaneous detection and differential identification of human and avian influenza virus types, subtypes, and emergent variants.](#)

Metzgar D, Myers CA, Russell KL, Faix D, Blair PJ, Brown J, Vo S, Swayne DE, Thomas C, Stenger DA, Lin B, Malanoski AP, Wang Z, Blaney KM, Long NC, Schnur JM, Saad MD, Borsuk LA, Lichanska AM, Lorence MC, Weslowski B, Schafer KO, Tibbetts C.

PLoS One. 2010 Feb 3;5(2):e8995.

[Hypothyroidism among military infants born in countries of varied iodine nutrition status.](#)

Cranston MM, Ryan MA, Smith TC, Sevic CJ, Brodine SK.

BMC Endocr Disord. 2010 Feb 1;10;2.PMID; 20205833

[Epidemiology of Hepatitis B virus infection in a US cohort of HIV-infected individuals during the past 20 years.](#)

Chun HM, Fieberg AM, Hullsiek KH, Lifson AR, Crum-Cianflone NF, Weintrob AC, Ganesan A, Barthel RV, Bradley WP, Agan BK, Landrum ML.

Clin Infect Dis. 2010 Feb 1;50(3):426-36.

*Continued on Page 22– Publications*



## NHRC Staff Awards Ceremonies



Honorees at the NHRC Award Ceremony

Military:

CAPT Kerry Thompson, Letter of Appreciation  
LCDR Claro Garcia, Meritorious Service Medal  
CDR Dennis Faix, Commendation Medal  
CDR Deborah White, Commendation Medal

Civil Service:

Dr. James Hodgdon, Letter of Appreciation  
Dr. Christopher Myers, On the Spot Award

The following received Certificates of Appreciation in recognition of their project support.  
Henry Jackson Foundation:

Mary Abuja; Jessica Anunwah; Melinda Balansay; Ryan Baker-Branstetter; Darcie Bayness; Mike Broderick PhD; Jason Brown; Kimberly Butler-DeRose; Daisy Cabrera; Rob Coon; Johnnie Conolly; Gina Creaven; Eileen Cristobol; James Davies; Larivhie DelaCruz; Melody Ellorin; Jomelynne Fontecha; Holly Gallo; Tom Gao; Rebecca Grass; Chasity Greer; Christian Hansen; Anthony Hawksworth; Lesley Henry; Elizabeth Hunt; Peter Kammerer; Kristopher Legge; Sharon Little; Erin McDonough; David Metzgar PhD; Lindsay Navarro; Julianne Nielsen; Ryan Ortiguerra; Viola Paulk; Khanh Pham; Gina Randazzo; Jennifer Riddle; Bhruha Shah; Michelle Unabia; Sarah Vu; Scott Vo; Christina West-Green; Tabitha Zimmerman.

SAIC:

Angelee Ferber

Scientific Support Office: Letters of Appreciation were presented to Jamil Padcayan and Sandi Woo

*Continued on Page 20- Awards*



## Dwell-time Outcomes Explored

Military deployment has long been recognized as a stressor in that it removes service members from the stability of home and family. This can lead to a variety of exposures adversely affecting both the physical and mental health of the service member.

Since September 11, 2001, the operational tempo of the military has dramatically risen; increasing the number of deployments to the combat zone. Multiple deployments have been linked to higher rates of self-reported mental health problems, such as posttraumatic stress disorder, which may be indicative of the cumulative effects of stress.

In order to mitigate this effect, some have proposed regulating 'dwell time', or the length of time at home between deployments.

Dwell time is typically expressed as dwell-to-deployment time ratio (DDR).

- (<1:1) Indicating lower dwell time compared to first deployment time
- (1:1) As much dwell time, or
- (2:1) Twice as much dwell time

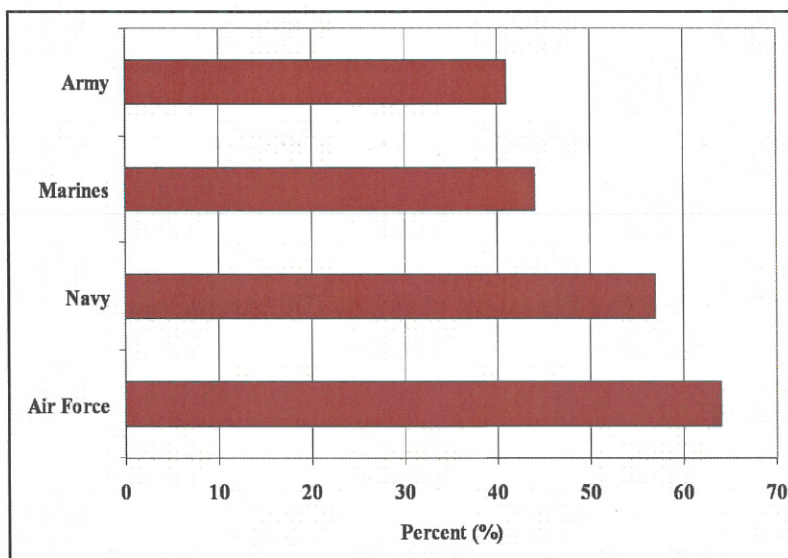
Senator Jim Webb introduced a bill in 2007 that called for establishment of a 1:1 DDR.

The Secretary of Defense, Robert Gates, stated similar ideas, with an eventual goal of advancing the DDR to 2:1.

Data from the Defense Manpower Data Center, in Figure 1, shows that less than half of Marines and Soldiers with two deployments between September 2001 and December 2007 had a DDR of 2:1.

The utility of a policy regulating dwell time has yet to be thoroughly investigated. The most recent Mental Health Advisory Team report found

*Continued on Page 16— Dwell-time*



**Figure 1.** Frequency by service of those home for at least twice as long as 1st deployment prior to 2nd deployment, September 2001-December 2007, Source; DMDC.



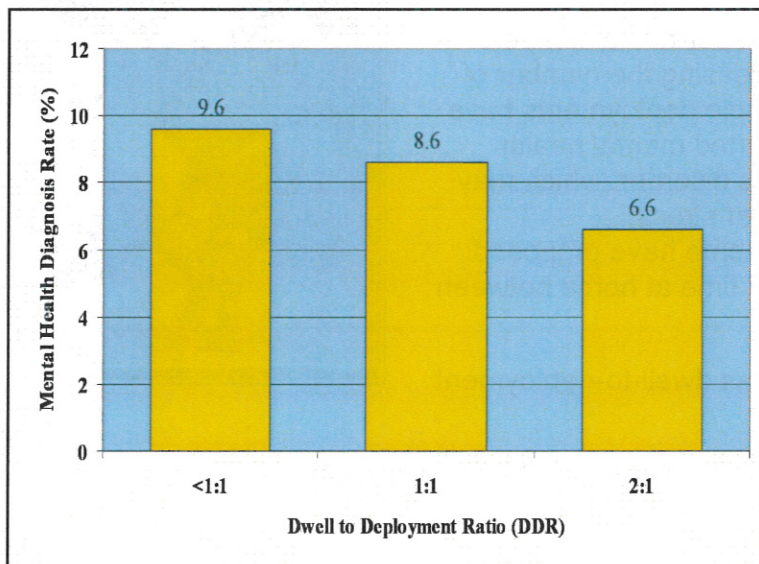
Continued from page 15—Dwell-time

that soldiers' mental health returned to pre-deployment levels following 30-36 months of dwell time.

Researchers at Naval Health Research Center Department of Medical Modeling and Simulation are currently working to extend this research to all services and

to explore relationships between deployment length, dwell time, and adverse outcomes, such as mental health and family problems.

Preliminary results presented at the 49th Navy and Marine Corps Public Health Conference found a reduced rate of



**Figure 2.**  
*Mental health diagnosis rate by dwell-to-deployment time ratio.*

diagnosed mental health disorders among Marines with longer dwell time.

As shown in Figure 2, rates of diagnosed mental health disorders decreased from 9.6% to 6.6% for Marines with a DDR of 2:1.

For present and future military conflicts, research on multiple deployments and dwell time will contribute to evidence-based decision making and work toward amelioration of the overall health of the U.S. Armed Forces.



Continued from page 9—In the NEWS

Health Research Center in San Diego and colleagues find deployed soldiers and Marines were hardest hit by respiratory woes.

### Study looks at war, stress

Erie Times-News - NewsBank - Jan 17, 2010

Researchers at Naval Health Research Center led the study of about 700 troops injured in Iraq from 2004 through 2006

### Deployment Takes Toll on Army Wives

BusinessWeek - Jan 13, 2010

...Even the homecoming, called the reintegration period, isn't necessarily easy on the family. Soldiers may come home changed, perhaps because of post-traumatic stress disorder (PTSD) or injuries, but in more subtle ways, too. "Our findings suggest that the use of morphine during trauma care may reduce the risk of subsequent development of PTSD after serious injury," wrote the researchers from the Naval Health Research Center in San Diego.



## NMSC Commander is Special Guest Speaker

By Lt. j.g. Laura K. Stegherr, Navy Diversity  
Directorate Public Affairs

Rear Admiral Eleanor Valentin, Commander of the Navy Medicine Support Command (NMSC) at NAS Jacksonville and Director of the Navy's Medical Service Corps (MSC), served as the special guest speaker for the Federal Asian Pacific American Council (FAPAC) at the organization's 25<sup>th</sup> Annual National Leadership Training Conference held May 6 at the Gaylord National Hotel in National Harbor, Maryland.

Valentin, a Filipina, became the Navy's first female Asian Pacific flag officer shortly before assuming command of NMSC in September 2009, and is the Navy's first female MSC Director.

"I stand in front of you today because I am an example of a positive outcome of people who fought hard to ensure Asian Pacific Americans and women had equal opportunity in this country," said Valentin. "Our Asian Pacific predecessors fought for the opportunities that I have today and have had during my lifetime. I am an example of a world that will allow you to work without obstruction to achieve your personal and professional goals."



Valentin said she was honored to be a leader in the Navy's Asian Pacific community and to speak at the FAPAC conference.

"I could not be more proud and more humbled to represent the Asian Pacific Sailors and civilian employees serving today," she said. "It's an honor to serve in an organization like the Navy that gives its people, male or female, opportunities to excel no matter what their race. Through the years, Navy leadership has recognized my accomplishments and given me more and more responsibilities. I find that very

*Continued on page 18 - Guest Speaker*

**"I stand in front of you today  
because I am an example  
of a positive outcome of people  
who fought hard  
to ensure Asian Pacific Americans and women  
had equal opportunity in this country,"**

**REAR ADM Eleanor Valentin**



# NHRC welcomes the following;

Sarah Arend  
LTC John Barrett  
CAPT Ben Balough, MC  
Dr. Michael Basso  
Jason Bow  
Matthew Brown  
Andrea Busse  
Lisa Cortez  
John-David Collins  
Christopher Demuro  
Dr. Carlos de Mattos  
Dr. Cecilia de Mattos  
Dr. Diep Duong



CAPT Doug Forcino, MSC  
CAPT Braden Hale, MC  
Joy Keller  
Lauren Kipp  
Tyler Linn  
Dr. James Mackiewicz  
CDR Deborah White, MSC

Hope McMaster  
Stacie Nguyen  
Laura Palombo  
Agnes Ramos  
Daniel Sack  
Javier Soria  
Donna Stachowicz  
Janet Tang  
Violeta Tong  
Jennifer Walstrom  
Michela Wheeler  
Vern Wing  
Claire Wolf

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*Continued from page 17 — Guest Speaker*

rewarding and very satisfying.”

“Participating in this event and partnering with groups like FAPAC highlights the important roles and the accomplishments of Asians and Pacific Americans in the Navy,” said ENS Lorna Mae Devera, the Diversity Directorate’s Asian and Pacific Islander outreach lead.

FAPAC is a nonprofit organization that represents civilian and military Asian and Pacific American (APA) employees in the Federal and District of Columbia governments and encourages the participation and advancement of APAs in the government work force. For more news from Chief of Naval Personnel - Diversity Directorate, visit: <http://www.navy.mil/local/cnp-diversity/>.

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*Continued from page 13 — Publications*

[Adenovirus 36 seropositivity is strongly associated with race and gender, but not obesity, among US military personnel.](#)

Broderick MP, Hansen CJ, Irvine M, Metzgar D, Campbell K, Baker C, Russell KL.  
Int J Obes (Lond). 2010 Feb;34(2);302-8.

[Psychosocial predictors of military misconduct.](#)

Booth-Kewley S, Highfill-McRoy RM, Larson GE, Garland CF.  
J Nerv Ment Dis. 2010 Feb;198(2);91-8.

[Correlates of posttraumatic stress disorder symptoms in Marines back from war.](#)

Booth-Kewley S, Larson GE, Highfill-McRoy RM, Garland CF, Gaskin TA.  
J Trauma Stress. 2010 Feb;23(1);69-77.



*Continued from Page 6 — Highlights*

a table with 8 high school students from around the country that are members of the AJAS and are presenting their research projects at the annual meeting in San Diego.

**NHRC Surveillance Data Provided for VRBPAC Recommendation** – February 2010

The Food and Drug Administration (FDA) convened the *Vaccines and Related Biological Products Advisory Committee* (VRBPAC) to review recommendations for production of the annual tri-valent influenza vaccine based upon surveillance conducted by the WHO, CDC and US DoD. The DoD VRBPAC presentation was provided by CAPT Kevin L. Russell, Director of the Global Emerging Infections Systems. Key to Dr. Russell's presentation was data provided from surveillance at recruit centers surveyed by Naval Health Research Center.

Recommendations for the 2010 vaccine included:

- A/H1N1/California/7/2009
- A/H3N2/Perth/16/2009-like
- B/Brisbane/60/2008-like.

**JTAPIC Program wins Award** - January 2010

Bill Hancock, Will Sattley and Sherri Winchester from the Medical Modeling, Simulation & Mission Support department attended the National Ground Intelligence Center's Anti-Armor Analysis Program Threat to Vehicle Conference in support of the Joint Trauma and Injury Prevention in Combat (JTAPIC) program. NHRC's wounded in action analysis and injury coding were presented at the meeting. The Army Heavy Brigade Combat Team Unit Tab award was presented to the JTAPIC program for its excellence in medical analysis.

**NHIN/VLER Authorized - Goes Live** – January 2010

The DoD Nationwide Health Information System/Virtual Lifelong Electronic Record (VLER) team, led by CAPT Emory Fry, successfully delivered the San Diego Project code to the TRICARE Management Activity, passed security and functional testing, and received an interim authority to operate as an enhancement to Armed Forces Health Longitudinal Technology Application/Clinical Data Repository. An authority to connect to Navy networks so that the system can be deployed at Naval Medical Center San Diego was also received. VLER went live with Kaiser Permanente and Veterans Administration on Saturday, January 30th, with successful 3-way exchange – the first production 3-way exchange ever. This represents the culmination of a significant effort by CAPT Emory Fry and his team at NHRC.

**Haiti Earthquake Relief** – January 2010

Subject matter expert medical planning and logistics support was provided to the Humanitarian Response/Disaster Relief efforts in support of the earthquake in Haiti. Special Operations Command South has stood up 24 hour response operations within the command center to include the Force Surgeon's medical cell. Maureen Aubuchon provided research information for deploying a 10-bed Navy Emergency Medical Facility (EMF) to Navy medical personnel deploying in support of the disaster relief mission to earthquake ravaged Haiti. The information included tactics, techniques, and procedures for EMFs, medical lessons learned, and medical intelligence on the region.

*Continued on Page 21 — Highlights*



## NHRC Staff Awards Ceremonies

*Continued from page 14—Awards*

The Command Social Committee (CSC) were acknowledged with Letters of Appreciation for their dedication and hard work on the Command Social Functions.

They include Brenda Crooks; Sonya Davis; Rebecca Grass; Melanie Adams; Brian Nelson; Ben Ventura; LCDR Claro Garcia; G. Jay Walker; LT Jamie Bartlett; Emily Schmied; Jenny Crain; Jamie McGrew; Melissa Myers; Gina Radazzo; Elizabeth Lavelle; Johnny Delfin; Murray "Murf" Smith; Bruce Campbell; Martin Lebedda; Daniel Amarento; and Henry Bullock.

Larivhie DelaCruz was also officially presented with her first place award for the Best Halloween Costume.



**Honorees from the April 30 NHRC Award Ceremony.**

### Military:

LCDR Jeffrey Hayworth—Meritorious Service Medal

### Civil Service:

- ◇ Michael Galarneau – 15 Years of Service
- ◇ Letters of Appreciation - Enedina Montenegro, Leslie Cohan, Brian Nelson, Tina Colantonio, Dianna Hulse, Ylodia Dungca, Christopher Shaw and Cora Gonzales
- ◇ On the Spot Award – Jerry Blanco, Johnny Delfin, Jeffrey Jones, Brian Nelson, Julie Olszower, Agnes Ramos, and Ben Ventura
- ◇ Recognition for Outstanding performance through RTI at NHRC—Bonnie Tran

### SAIC – Certificates of Appreciation

Don Johnson, Amanda Markham, Robyn McRoy, Emily Schmied, Pinata Sessoms

### Henry Jackson Foundation – Certificates of Appreciation

Ava Conlin, Tom Gao, Beverly Sheppard, Reuben Smith

Letters of Appreciation for Change of Command Ceremony were presented to Sonya Davis, Rebecca Grass

Blue Ribbons presented for 1<sup>st</sup> place in Poster Contest:

Major Nisara Granado, Dr. Besa Smith, Kelly Jones, Dr. Tyler Smith, Jamie Horton, Isabel Jacobson.



*Continued from Page 19 — Highlights*

### **Biosecurity Engagement Program (BEP) – January 2010**

CDR Patrick J. Blair met with the Department of State's Biosecurity Engagement Program (BEP) to discuss FY10 projects to support respiratory diseases surveillance and biomedical capacity building with the Mexican Ministry of Health. BEP was first funded in FY2006 and is part of the Nonproliferation, Anti-Terrorism, Demining and Related Programs Global Threat Reduction programs account managed and implemented by the U.S. Department of State Bureau of International Security and Nonproliferation Office of Cooperative Threat Reduction. The BEP mission is to engage biological scientists and combat bioterrorism worldwide by providing assistance to improve biosecurity, biosafety, pathogen surveillance, and infectious disease surveillance and response. NHRC has partnered with BEP since 2008.

### **USMC Ward Authorized Medical Allowance List (AMAL) Review– January 2010**

In support of Marine Corps Systems Command, Maureen Aubuchon, Martin Hill and Vern Wing facilitated the USMC Ward Authorized Medical Allowance List modernization review at Camp Pendleton. The review considers the number and types of injured military personnel likely to occur and then evaluates the medical tasks, supplies, and equipment required to provide appropriate care.

### **ONR Human Injury Treatment (HIT) project – January 2010**

Dr. Howard Champion, an NHRC collaborator on the ONR Human Injury Treatment (HIT) project, met with Mike Galarneau, Dr. Paula Konoske and Judy Dye to discuss progress and plans. The HIT project has a number of components that will, for the first time, be integrated to project ship survivability, injury patterns, and treatment requirements. Among the components is the development of a new injury severity scoring system that Dr. Champion has developed with input from Dept. 161. This new scoring system includes indices for incapacitation as well as injury severity and will be integrated into ship injury projection models and Tactical Medical Logistics for estimating shipboard medical resource requirements and casualty mortality.

### **Physical Readiness Test (PRT) Historical Review – December 2009**

Dr. Hodgdon presented a historical review of the Physical Readiness Test (PRT) and changes in its makeup and scoring since 1979 at a review hosted by N-135F (Physical Readiness Program) at Naval Support Activity, Mid-South in Millington, TN.

The purpose was to evaluate the rationale behind the PRT, the items contained in the PRT and the basis for the standards against which PRT performance is evaluated. Representatives from National Strength and Conditioning Association, American College of Sports Medicine, several universities, BUMED, NHRC (Dr. Hodgdon), and N-135 attended.





Continued from page 3— *CHANGE OF COMMAND*

Naval Health Research Center serves as a leading research and development laboratory for the Department of Defense. Much of NHRC's research focuses on deployment and career-span health and performance of DoD personnel, which requires close coordination with senior medical department representatives afloat and force medical officers ashore.

**"I AM HONORED AT BEING  
SELECTED TO LEAD THIS VERY  
IMPRESSIVE GROUP OF  
SCIENTISTS!"**

**- CAPT Gregory Utz**



**CAPT Richard Haberberger and CAPT Gregory Utz**

Most of the work conducted at NHRC requires close and continuous interaction with operational units of the Navy, Marine Corps, and DoD. NHRC's location affords access to Navy and Marine Corps operational platforms and special warfare units and training commands.



## SPOTLIGHT;

**CAPT Gregory C. Utz**  
MD, USN/Medical Corps



Captain Gregory C. Utz, a native of Minnesota, earned his Doctor of Medicine degree from Georgetown University School of Medicine.

Captain Utz was the Director of Medical Operations for the USNS Mercy, deploying in 2006 on a humanitarian mission to Southeast Asia and the Pacific that resulted in >214,000 medical encounters with >60,000 patients, 300 preventive medicine assessments, and training of 6000 medical professionals in 10 countries. He successfully integrated joint US and allied military medical professionals from 11 countries and 13 NGOs in very challenging, high-threat areas.

In May 2007, Captain Utz transferred to

Naval Health Research Center to serve as the Executive Officer and is currently the Commanding Officer.

Captain Utz is certified in internal Medicine and Infectious Diseases by the American Board of Internal Medicine and in Tropical Medicine and Hygiene by the American Society of Tropical Medicine and Hygiene.

His US Navy awards include two Meritorious Service Medals (September 2006, 2003), two Navy-Marine Corps Commendation Medals (2005, 1998), and three Navy-Marine Corps Achievement Medals (1997, 1993, 1988).





**CAPT Gregory Utz**  
Commanding Officer

# Commanding Officer's Corner

I feel very fortunate to have taken the helm of NHRC at such an exciting time in our history! The energy level and excitement among the staff appears to be at record levels, due in large part to the high relevance of our research to operational concerns. Every department is engaged in meaningful work that continues to impress our sponsors, BUMED leadership, and our operational customers.

One new area that presents tremendous opportunities is our engagement with Navy Medical Center San Diego (NMCSD) on both clinical research programs and resident training in research and development.

Many of you will recall that for many years the medical R&D labs never participated in research with the Military Treatment Facilities (MTF's). However, as our Sailors and Marines are deploying regularly, we see that the more frequent cycle of pre-deployment readiness, deployment health and exposures, and post-deployment recovery requires new integrated solutions aimed at ensuring our service members remain at their highest readiness levels.

The reinvigoration of the Clinical Investigation Program (CIP), with placement of

the CIP Director, CAPT Ben Balough at NHRC, presents new and exciting opportunities to focus and combine our R&D skills with those of our clinical colleagues at MTFs to enable more potent research teams and capabilities. We now have about ten protocols underway with NMCSD with many more in development.

Similarly, we have initiated a Resident Research Program at NHRC, which allows residents to join existing projects and learn how larger research teams carry out protocols from beginning to end. In return, the residents provide a unique clinical perspective on the research, thus strengthening the end products. I encourage all of you to support this program, which certainly seems to be a great return-on-investment for us.

With summer on the horizon, I encourage you all to get the rest and relaxation that you need. I know that spring is a challenging time with FY10 execution demands, and FY11 preparation well under way. So, make sure to take care of yourselves, your families and your friends.

*And, keep up the great work!*

- CAPT G Utz

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**Mission:** To conduct health and medical research, development, testing, evaluation, and surveillance to enhance deployment readiness of DoD personnel worldwide.

**Vision:** World-class health and medical research solutions anytime, anywhere.

**NAVAL HEALTH RESEARCH CENTER**  
**SAN DIEGO**

